

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A pneumatically controlled vibration damper for damping vibration of a subject member as a primary vibration system, said vibration damper ~~being of passive type and~~ comprising:

- a mounting member adapted to be fixed to the subject member;
 - a mass member disposed spaced apart from said mounting member and displaceable relative to said mounting member;
 - an elastic connector secured to said mounting member and said mass member for elastically connecting said mass member to said mounting member so that said elastic connector and said mass member cooperate to form a secondary vibration system;
 - a working air chamber partially defined by said elastic connector and closed from an external area;
 - an air passage connected to said working air chamber for regulating an air pressure in said working air chamber from said external area; and
 - a static pressure-regulating system operable for substantially statically regulating said air pressure in said working air chamber via said air passage, so as to induce a substantially static elastic deformation of said elastic connector for changing a spring characteristic of said elastic connector,
- wherein said static pressure-regulating system includes a switch valve operable for alternately connecting said working air chamber to a vacuum source and said atmosphere at a frequency significantly higher than a frequency of vibration to be damped, and a duty ratio regulating system operable for regulating a duty ratio of a control signal applied to said switch valve according to said vibration to be damped, said duty ratio regulating system changing a ratio of a time of connection of said working air chamber to said vacuum source, to a period of a switching operation of said switch valve so as to regulate a static air pressure value in working air chamber.

2. (Original) A pneumatically controlled vibration damper according to claim 1, wherein said static pressure-regulating system is operable to substantially statically change said air pressure in said working air chamber by applying a substantially static air pressure having a

pressure value selected from a predetermined range according to a frequency of said vibration to be damped so that a spring characteristic of said elastic connector become harder as a frequency of said vibration to be damped become higher.

3. (Original) A pneumatically controlled vibration damper according to claim 1, wherein said static pressure-regulating system is operable to apply to said working air chamber a substantially static air pressure whose value is changed between or among a predetermined different static pressure values according to a change in a frequency of said vibration to be damped so that a spring characteristic of said elastic connector is gradually changed.

4. (Original) A pneumatically controlled vibration damper according to claim 1, further comprising at least one abutting projection formed on an inner surface of said working air chamber such that said at least one abutting projection protrudes from at least one toward an other of said elastic connector and an abutting portion of said inner surface of said working air chamber, said abutting portion being opposed to said elastic connector, wherein said static pressure-regulating system is operable to regulate said air pressure in said working air chamber so that said abutting projection is brought into abutting contact with said elastic connector or said abutting portion of said inner surface opposed to said elastic connector for applying a restricting force to said elastic connector.

5. (Original) A pneumatically controlled vibration damper according to claim 1, wherein said mounting member and said mass member are opposed to and spaced apart from each other in a vibration input direction in which said vibration damper primary receives a vibrational load to be damped, wherein said elastic connector comprises a connecting elastic body that extends outwardly from said mounting member in a direction perpendicular to said vibration input direction and is bonded at an outer peripheral portion thereof to said mass member so that said connecting elastic body primary undergoes shear deformation thereof upon a displacement of said mass member in said vibration input direction, and wherein said working air chamber is disposed between a surface of said mass member and a surface of said connecting elastic body that is opposed to said surface of said mass member in said vibration input direction.

6. (Original) A pneumatically controlled vibration damper according to claim 1, wherein said air passage is formed through said mounting member.

7. (Original) A pneumatically controlled vibration damper according to claim 1, wherein said vibration damper constitutes a vibration damper for an automotive vehicle, and a natural frequency of said secondary vibration system constituted by said elastic connector and said mass member is tuned to a low frequency band corresponding to engine idling vibration when said static pressure-regulating system operates to apply an atmospheric pressure to said working air chamber, and to a high frequency band corresponding to booming noises when said static pressure-regulating system operates to apply a static air pressure other than said atmospheric pressure to said working air chamber.

8-12. (Canceled).

13. (Currently Amended) A pneumatically controlled vibration damper for damping vibration of a subject member as a primary vibration system, said vibration damper ~~being of passive type and~~ comprising:

- a mounting member adapted to be fixed to the subject member;
- a mass member disposed spaced apart from said mounting member and displaceable relative to said mounting member;
- an elastic connector secured to said mounting member and said mass member for elastically connecting said mass member to said mounting member so that said elastic connector and said mass member cooperate to form a secondary vibration system;
- a working air chamber partially defined by said elastic connector and closed from an external area;
- an air passage connected to said working air chamber for regulating an air pressure in said working air chamber from said external area; and
- a static pressure-regulating system operable for substantially statically regulating said air pressure in said working air chamber via said air passage, so as to induce a substantially static elastic deformation of said elastic connector for changing a spring characteristic of said elastic connector,

wherein said static pressure-regulating system includes a switch valve operable for alternately connecting said working air chamber to a vacuum source and said atmosphere at a frequency significantly higher than a frequency of vibration to be damped, and a switching operation of said switch valve is regulated according to a duty ratio control (PWM) or a frequency control (FM) so that said switch valve regulates a static air pressure value in working air chamber.